

Application Number 10/000,287  
Amendment dated March 22, 2006  
Reply to Office Action of December 22, 2005

REMARKS

Claims 11-13, 15-18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Roberts (U.S. Patent Number 5,541,654). Claims 14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts. In view of the following remarks, the rejections are respectfully traversed, and reconsideration of the rejections is requested.

In the present invention of claims 11-20, during a high speed image pickup, a first horizontal line is enabled, a charge signal of the first horizontal line is output by a vertical transmission signal, and a vertical erasure signal is then applied, erasing the charge signal of the first horizontal line. A second horizontal line is then enabled. The vertical erasure signal is applied for a second time, erasing the charge signal of the second horizontal line. A horizontal line following the first horizontal line is then enabled, and the vertical transmission signal is applied for a second time, outputting a charge signal of the horizontal line following the first horizontal line. Thus, the vertical erasure signal is applied for the second time, erasing the charge signal of the second horizontal line before the vertical transmission signal is applied for the second time, reducing the amount of time for which charges are accumulated.

Roberts discloses that two rows of pixels on an array 12 are accessed simultaneously for the purpose of resetting one pixel in a row identified with an address "ADDRST", and for simultaneously accessing the image information contained in one pixel in the row of pixels identified with an address "ADDROW". A variable rolling reset of the pixels is implemented by serially resetting pixels a row or more in advance of and in the same columns as pixels which are being accessed for their image information. The one of these two selected pixels which is not to supply image information is reset by connecting a negative plate of a capacitor 44 to a trace 54. That is, whatever charge has accumulated on the capacitor 44 is drained to the trace 54. After this reset event the capacitor 44 again begins to store charge from photodiode 42. This charge over time is analogous to time integration of light intensity and results in a charge stored on the capacitor 44 which is indicative of light flux on the photodiode 42. The charge storage on capacitor 44 and time integration of light intensity on the photodiode 42 will continue in the reset pixel until the pixel is again reset, or until the pixel is selected to provide image information.

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The one pixel of the two pixels which is to provide image information stores charge on capacitor 44, outputs a signal that is indicative of the stored charge on capacitor 44, and then the pixel is reset in preparation for another interval of time integration storing charge on capacitor 44 (see Roberts, column 6, line 55 through column 7, line 14 and column 8, lines 4-46).

Roberts fails to teach or suggest that a second horizontal line is enabled and a vertical erasure signal is applied for a second time, erasing a charge signal of the second horizontal line before a vertical transmission signal is applied for a second time to output a charge signal of a horizontal line following a first horizontal line, thereby reducing an amount of time for which charges are accumulated, as set forth in claims 11-20. Instead, in Roberts, when the one pixel of the two pixels which is to provide image information is selected, charge is stored on the capacitor 44, the signal that is indicative of the stored charge on capacitor 44 is output, and then the pixel is reset in preparation for another interval of time integration storing charge on capacitor 44. Once the pixel is selected to provide image information, or is enabled, charge is stored, and the signal is output and then reset. Therefore, Roberts does not teach or suggest enabling a second horizontal line, applying a vertical erasure signal for a second time, erasing the charge signal of the second horizontal line, enabling a horizontal line following the first horizontal line, and applying the vertical transmission signal for a second time, outputting a charge signal of the horizontal line following the first horizontal line, as set forth in claims 11-20.

Roberts fails to teach or suggest elements of the invention set forth in claims 11-20. Specifically, Roberts fails to teach or suggest that a second horizontal line is enabled and a vertical erasure signal is applied for a second time, erasing a charge signal of the second horizontal line before a vertical transmission signal is applied for a second time to output a charge signal of a horizontal line following a first horizontal line, thereby reducing an amount of time for which charges are accumulated, as set forth in claims 11-20. Therefore, it is believed that the claims are allowable over the cited reference, and reconsideration of the rejections of claims 11-13, 15-18 and 20 under 35 U.S.C. 102(b) as being anticipated by Roberts and claims 14 and 19 under 35 U.S.C. as being unpatentable over Roberts, is respectfully requested.

In view of the foregoing remarks, it is believed that all claims pending in the application

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are in condition for allowance, and such allowance is respectfully solicited. If a telephone conference will expedite prosecution of the application, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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